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which will produce a continuous musical note. If this ratio should be confirmed by further observations, it will furnish a valuable addition to the numerical magnetic relations which I have already pointed out (*ante*, x., 358, &c.).

A tendency to four-octave intervals, is shown in the different planetary values of  $mr$  (Sun  $\div$  planet) which are, approximately as follows :

Mercury.....	$2^{30} \times x^*$	Jupiter.....	$2^{13} \times \frac{5}{4}$ (E)
Venus.....	$2^{25} \times \frac{4}{3}$ (F)	Saturn.....	$2^{15} \times \frac{5}{4}$ (E)
Earth.....	$2^{25}$ (C)	Uranus .....	$2^{19} \times \frac{6}{5}$ (D #)
Mars.....	$2^{29}$ (C)	Neptune .....	$2^{18} \times \frac{5}{3}$ (A)

The value for Mercury is  $3 \times 4$  octaves higher than that for Neptune ; Venus and Earth,  $3 \times 4$  octaves higher than that of Jupiter ; Mars, 4 octaves higher than Earth ; Uranus, 4 octaves higher than Saturn.

*Stated Meeting, March 7th, 1873.*

Present 22 members.

Vice-President, Mr. FRALEY, in the Chair.

A letter accepting membership was received from Geo. Burrows, M. D., F. R. S., Prest. R. College of Physicians, London, 18 Cavendish Square, February 12, 1873.

Letters acknowledging receipt of publications were read from the Society of Sciences at Geneva (XIV iii, 86, 87), Nov. 1, 1872 ; from the Society at Wiesbaden (78 to 87), Sept. 10, 1872 ; from the R. Bavarian Academy (86 to 87 bis ; XIV. iii, bis), Dec. 1, 1872 ; Prof. R. Owen (84, 85), Dec. 1, 1871 ; and the Smithsonian Institute (89), Feb. 15, 1873.

Letters of envoy were received from the R. Bavarian Academy, asking also for Transactions (XII ii, iii.) ; from the R. Society London, and Linæan Society asking for Transactions (III, pp. 315 to 382), and Proceedings (62 and 87,) ; And from the S. P. S. Geneva.

On motion, the Librarian was authorized to forward the required publications if possible, and to request in return a copy of the Catalogue of Memoirs published by the Royal Society.

\* The mass of Mercury is so uncertain, that the note corresponding to the C line cannot be determined.

A letter from Mr. Hector Orr was read, describing a new and ingenious microscope-slide, devised and exhibited before the Franklin Institute by its Curator Mr. D. S. Holman, at a meeting of its Optical Section.

Donations for the Library were received from the Russian Geographical Society; Bavarian and Belgian Academies; the Societies at Wiesbaden, Frankfort and Geneva; *Revue Politique* and Dr. Girard, of Paris; the Meteorological Office, Society of Arts, and Prof. Owen, of London; the Naval Observatory of San Fernando; the Mass. Board of R. R. Commissioners; Ed. M. Stone, of Providence; American Journal of Science and Prof. Dana, of New Haven; the Phil. Journal of Pharmacy, Dr. Kirkbride and Prof. Cope; the Board of Public Charities of Pennsylvania; and the Bureau of Education at Washington.

The death of Dr. Hugh L. Hodge, of Philadelphia, Feb. 26th, aged 77, was announced by Prof. Cresson, and, on motion made, Dr. Penrose was appointed to prepare an obituary notice of the deceased.

The death of Dr. Thos. McEuen, of Philadelphia, Feb. 27th, aged 73, was announced by Prof. Cresson.

Dr. Seiler was invited to exhibit before the meeting two Magic Lantern Slides for producing on the screen the alternately vibrating waves of light, one of which he had made in imitation of the apparatus used for that purpose in his recent lectures by Prof. Tyndall, consisting of concentric ellipses on a revolving disc; the other he had devised and constructed as an easier and simpler form which any one could make, viz., a long slide on which diverging and converging lines replace the ellipses. A medial horizontal straight line gives a constant central point of light, to and from which vibrating points are produced by the diverging and converging straight lines above and below the medial line.

The Secretary exhibited a large Map of the Underground Workings of the Collieries south of Wilksbarre, in the Third Anthracite Coal Basin of Pennsylvania, surveyed and drawn

by Mr. Henry Harden, C. E., and described the geological features of that part of the basin portrayed by the map.

Mr. Lesley also described the geological facts of most interest recently studied by Mr. Franklin Platt and Mr. John H. Harden, C. E., on Dunning's Creek, Bedford County, Pennsylvania, and compared the exhibition of the Fossil Ore beds of No. V (Clinton Group, Upper Silurian) with that of the same deposit at Frankstown, Danville and other points in Pennsylvania.

Mr. Price introduced the subject of a Geological Survey of Pennsylvania, which led to its discussion by Prof. Trego and other members present.

Prof. Chase placed on record, with explanatory remarks, four notes: 1, on Planeto-taxis; 2, on the rotation of the Sun and interasteroidal planets; 3, on the special planetary relations to the Sun-spot period; 4, on the relative velocity of light and gravity.

Pending nominations Nos. 715 to 728, and new nominations Nos. 729 to 732, were read.

And the meeting was adjourned.

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#### ST. CLAIRSVILLE AND BEDFORD RAILROAD; AND DUNNING'S CREEK FOSSIL IRON ORE.

BY PROFESSOR J. P. LESLEY.

*(Read before the American Philosophical Society, March 7, 1873.)*

Mr. Franklin Platt has recently made for me a topographical and geological survey and sketch-map of some valuable deposits of iron ore in Bedford county, Pennsylvania; and Mr. John W. Harden a special study of the same with a view to the best way and probable expense of mining the ores. I have had the map lithographed, as an illustration of the characteristic features of the outcrop of the Upper Silurian rocks, which borders on the east the Bituminous Coal Field of Western Pennsylvania.

In front of the Allegheny Mountains, which runs for a hundred miles in nearly a straight (N. E. and S. W.) line from Muncy to opposite Bedford, lies a long, narrow, straight, deep valley, about five miles wide, occupied successively by the West Branch Susquehanna, the Bald Eagle Creek, the Little Juniata, the south head of the Juniata river, and finally by Dunning's Creek, which flows southwest and joins the Raystown Juniata at Bedford.